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TIMELY FARM TOPICS No. 43a
(Farm Science Serves the Nation No. 22)

HOW AN INSECTICIDE IS DEVELOPED ^A

Transcribed by Ernest Moore, Coordinator of Research Publications, Agricultural Research Administration, U. S. Department of Agriculture. Recorded September 13, 1945. Time, without announcer's parts, 4 minutes and 45 seconds.

ANNOUNCER'S OPENING AND CLOSING

OPENING

ANNOUNCER: (LIVE)

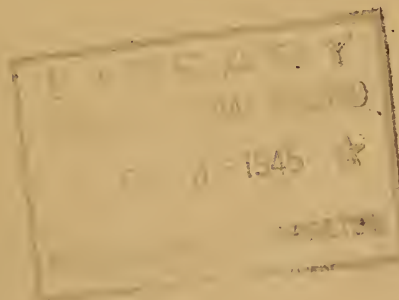
Farm Science Serves the Nation! And one of the ways farm science serve the Nation is by developing new and better insecticides...to protect our fruits and vegetables. Today...by transcription...we'll hear something about this subject from Ernie Moore, of the Research Administration of the United States Department of Agriculture. Mr. Moore:

CLOSING

ANNOUNCER: (LIVE)

Thanks, Ernie Moore, for telling us how the entomologists help the apple grower keep the codling moth under control. You've just heard Ernie Moore, of the Research Administration of the United States Department of Agriculture.

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TRANSCRIPTION

Have you ever stopped to think how much time it takes...how many years of hard work...to develop a new insecticide?

I talked with an entomologist the other day...about this very thing. He had just received a box of apples from a friend of his, and he told me to help myself. Fill up your pockets, he said, and I was glad to do it, for I've always counted the apple among the good things of life. These were perfect -- as I remarked to the entomologist.

Well, that started him to talking. He told me those apples came from the orchard of a fellow in southern Indiana, who was just about to give up a few years ago, because of the codling moth. This pest...one of the very worst enemies of the apple...had ruined crop after crop, till finally the grower hit on the right insecticide.

Well! I said, didn't this apple grower know about lead arsenate?

Sure he did, said the entomologist, but in his part of the country, lead arsenate just wouldn't give satisfactory control. We got him interested in something new we were testing... the Bureau of Entomology and Plant Quarantine...and it turned out to be a life-saver for his apple crop. As a matter of fact, he was one of the growers who cooperated in our orchard test with this new material, which was nicotine bentonite. Would you like to know, continued the entomologist, how we develop a new insecticide for apples?

I told him I certainly would! And that's how I happened to get the facts about new insecticides.

In the first place, any new product developed by the Bureau of Entomology and Plant Quarantine must meet certain requirements. It must kill the insect, when used in very small amounts, and it must not injure the plant. It must be reasonable in price, and fairly easy to apply. Any accumulation...left over in the soil...must not affect cover crops, or any other crops grown on that soil.

Above all, the insecticide must be easily removed from the fruit or vegetable, so there will be no spray residue hazard to the people who eat the food.

Hundreds of chemicals are tested, in the never-ending search for new and better insecticides, but out of every thousand, only a dozen or so meet the preliminary tests. After that, they must go through a long screening-out process, which begins in a Government laboratory.

If you were to visit the insect laboratory...at the Research Center in Beltsville, Maryland...you'd be shown a room with a "test-tube orchard" arranged in rows on a wooden rack. In each "test tube" there's a piece of apple, which has been sprayed with one of the different chemicals under test. The piece of apple is pushed part way down the tube, an egg of the codling moth -- just ready to hatch -- is placed in the tube, and then it's closed up so the newly-hatched larva can't get out.

After several days the tubes are examined...to see whether the codling moth larva has been able to eat its way into the apple in spite of the insecticide. If the larva has not been able to get past the insecticide, then the ~~new~~ material is considered promising enough for further testing.

The standard of comparison, by the way, in the work with the codling moth is lead arsenate. The new material may be noted as "inferior to lead arsenate," or "equal," or "superior" -- as the case may be.

The next step, in general, is to send samples of the test material to the Government laboratory at Vincennes, Indiana, for a combination laboratory and orchard test. If it gives good protection to apples, when sprayed on the trees, then it's ready for a "small plot" test under orchard conditions.

And this is very important, for while it may rate as very effective in the laboratory, what the entomologist wants to find out is how effective it is when mixed with one of the fungicides used to control apple diseases. For that's the way it will be used by the apple growers.

And even if the new material passes the "small plot" test with a good record, it's not ready to be put on the market unless it can pass a final examination.

By this time, in the life of a promising new insecticide, a number of commercial growers have found out about it, and they're anxious to try it out in their own orchards.

So, in cooperation with the Bureau of Entomology and Plant Quarantine, the new material may be sprayed on hundreds of trees in the important apple-growing regions of the country. In the Hudson Valley and the Shenandoah...in the Middle West...and the Pacific Northwest. The growers put it on the trees -- the entomologists keep records of what happens.

For even after all this, they may still have to figure out the most effective ways to use it...how it works on different varieties of apples...in different climates...and during periods of drought or rain. It may take several years in fact, before they find out all they want to find out about a new insecticide.

Well, this is only one example of how the entomologists are constantly working -- to get new and better insecticides that will protect our food crops. In the war against injurious insects, there is never any armistice or peace.